

REMARKS

Responsive to the Office Action mailed on February 9, 2009 in the above-referenced application, Applicant respectfully requests amendment of the above-identified application in the manner identified above and that the patent be granted in view of the arguments presented. No new matter has been added by this amendment.

Present Status of Application

Thus, on entry of this amendment, claims 3, 7, 22, 25 and 34-39 remain in the application. Claims 7 and 39 are objected to for informalities. Claims 3, 7, 22, 25 and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (US 6,710,608, hereinafter "Yoshida"). Claims 2, 5 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Farworth (US 6,362,642, hereinafter "Farworth"). Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Di Stefano (US 6,426,638, hereinafter "Di Stefano").

In this paper, claims 7 and 39 are corrected according to the suggestion of the Examiner. The objections are thereby believed to be overcome. Claim 7 is further amended to clarify the invention.

Reconsideration of this application is respectfully requested in light of the amendments and the remarks contained below.

Rejections Under 35 U.S.C. 103(a)

Claims 3, 7, 22, 25 and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida. Claims 2, 5 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Farworth. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Di Stefano. Applicant respectfully traverses the rejections for the reasons as follow.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

"All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Claim 7

Claim 7 recites a probe module for testing an LCD panel having a plurality of test points comprising:

- a probe base having a plurality of conductive metal traces;
- a plurality of completely exposed probe pins attached to the probe base, each of the probe pins comprising an elongate body, wherein at least part of the elongated body is bonded to at least one of the plurality of conductive metal traces of the probe base;
- a flexible circuit interconnect device for connecting the plurality of probe pins to an inspection apparatus;
- a flexible compression arm attached to a probe base and configured to engage the plurality of probe pins; and
- at least one adjustment element provided on the probe base configured to variably adjust a pressure of the flexible compression arm against the plurality of probe pins during testing of the LCD panel such that different pressures of the flexible compression arm against the plurality of probe pins produce different contact angles of the probe pins with respect to the test points.***

The rejections identify the combination of pinching body 110E and elastic film 400E as the alleged "flexible compression arm" of claim 7. Bolt 130E is identified as the alleged "adjustment element" of the claim. The rejections further assert:

Yoshida is silent about the adjusting of the contact angle of the probe pins.

Note that, the bolt 130E in combination with 112E and the elastic film 400E as shown in Figs. 20-24 would press on the end portion of contact pins 3aE bent in the S, S1 and S2 positions (as shown in Figs. 20-24) for good contact to the terminals of DUT (col. 25, lines 30-40). Therefore, it would have been obvious to a person having an ordinary skill in the art at the time of the invention was made to recognize that when the compression arm is pressed against the plurality of the probes by the tightening of the adjustment element

(130E), the contact angle of the probe pins is accordingly changed in positions, as shown in Figs. 20-24) for good contact to the terminals of DUT (col. 25, lines 30-40).

Respectfully, there is no teaching or suggestion in Yoshida that bolt 130E in combination with 112E and the elastic film 400E are arranged to variably adjust a pressure of the flexible compression arm against the plurality of probe pins during testing of the LCD panel such that different pressures of the flexible compression arm against the plurality of probe pins produce different contact angles, as required by claim 1.

To the contrary, in Yoshida's device, bolt 130E serves the function of firmly fixing top clamp 111E/112E and bottom clamp 115E/116E together so as to clamp "probe pins" 3aE and the "flexible compression arm" 400E there between. There is nothing else holding "probe pins" 3aE and/or "flexible compression arm" 400E in place. Thus, as far as its effect on "probe pins" 3aE and "flexible compression arm" 400E, bolt 130E may be said to have only two states, namely:

- 1) A state in which bolt 130E is tight such that it firmly fixes top clamp 111E /112E and bottom clamp 115E/116E together, in which case the pressure of "flexible compression arm" 400E against the "probe pins" 3aE is also fixed; and
- 2) A state in which bolt 130E is not tight such that it does not firmly clamp top clamp 111E/112E and bottom clamp 115E/116E together, in which case "probe pins" 3aE and "flexible compression arm" 400E are also not firmly fixed there between, and thus "probe pins" 3aE may slide about, lose electrical contact with 3E, or fall out of the structure—i.e., the device is unusable for its intended purpose.

State 1

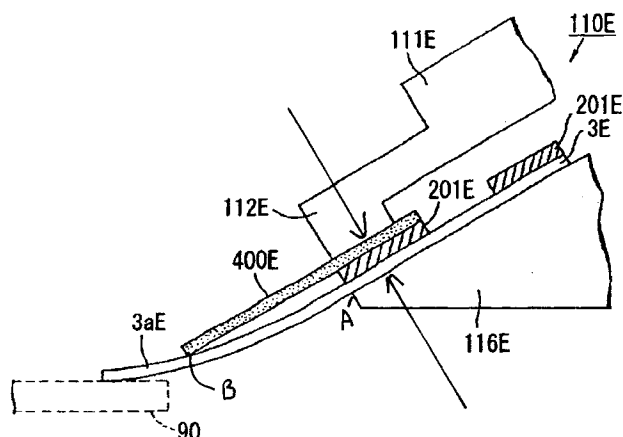
Respectfully, Applicant emphasizes that in state 1 (i.e., the "assembled" and "operable" state of Yoshida's device), there is no arrangement for variably adjusting the pressure of "flexible compression arm" 400E against "probe pins" 3aE using bolt 130E (i.e., the alleged "adjustment element"). In particular, "probe pins" 3aE must be firmly fixed in place for the device to be usable. Therefore, "flexible compression arm" 400E must also be firmly fixed in place relative to "probe pins" 3aE. This state does not allow for variable adjustment of a pressure of the "flexible

compression arm" against the plurality of "probe pins" during testing of the LCD panel such that different pressures of the flexible compression arm against the plurality of probe pins produce different contact angles, as required by claim 7.

This is illustrated in Figs. 21 and 24 of Yoshida. Bolt 130E is used to fix in place top clamp 111E. First projection 112E is integral with top clamp 111E. There is no disclosure that first projection 112E is adjustable relative top clamp 111E. The combination of top clamp 111E and first projection 112E is fixed to inclined plate 116E of bottom clamp 115E by bolt 130E.

In Fig. 24, "probe pins" 3aE, resin film 201E, and "flexible compression arm" 400E are shown wedged between top clamp 111E/112E and bottom clamp 115E/116E. In particular, a length of "probe pins" 3aE and "flexible compression arm" 400E is wedged between first projection 112E and inclined plate 116E. A marked up version of Fig. 24 is reproduced below:

FIG. 24



As shown, "probe pins" 3aE and "flexible compression arm" 400E are fixed relative to top clamp 111E/112E and bottom clamp 115E/116E. Namely, the orientation of the "pins" and "arm" are fixed by being wedged between projection 112E and inclined plate 116E, and therefore, the pressure of "flexible compression arm" 400E against "probe pins" 3aE due is also fixed.

Note that the orientation of the “pins” in position A extending out from between projection 112E and inclined plate 116E will be same no matter whether the pin is straight or bent. In particular, “probe pins” 3aE will not contact “flexible compression arm” 400E when the device is assembled. In this regard, Fig. 24 shows the device being pressed against element 90 such that “probe pins” 3aE are bent into contact with “flexible compression arm” 400E. This bending has nothing to do with bolt 130E.

However, even if one of the “probe pins” 3aE were originally severely bent such that it was pressed by “flexible compression arm” 400E during assembly, once assembled (and thus operable), there is only a single pressure. Namely, in this case, further tightening of the bolt after “flexible compression arm” 400E and “probe pins” 3aE are firmly fixed will not variably adjust a pressure of the “flexible compression arm” 400E against the plurality of “probe pins” 3aE during testing of the LCD panel such that different pressures of the flexible compression arm against the plurality of probe pins produce different contact angles. ***Even more particularly, once assembled to the point of being operable (i.e., “flexible compression arm” 400E and “probe pins” 3aE are firmly clamped), further adjustment of bolt 300E will have no effect on pressure of “flexible compression arm” 400E against the plurality of “probe pins” 3aE—even if they are in contact due to severe bending.***

Once again, Applicant notes that Fig. 24 shows “probe pins” 3aE pressed against element 90. Pressing “probe pins” 3aE against element may adjust a pressure of the “flexible compression arm” 400E against “probe pins” 3aE at point B. However, this adjustment in pressure has nothing to do with bolt 130E, and this unrelated to the requirements of claim 7. Unless the entire device is oriented in such a way that the “pins” press against something else, i.e., element 90 in Fig. 24, they will remain in exactly the same orientation as long as the top claim and bottom clamp are fixed together, i.e., as long as the device is operable.

State 2

Bolt 130E is “adjustable” in the sense that during assembly it is bolted into place. However, before “flexible compression arm” 400E and “probe pins” 3aE are firmly wedged between 112E and 116E, the device is unusable for its intended purpose since “probe pins” 3aE may slide about when pressed against element 90, interrupting electric contact.

Respectfully, once 112E and 116E are fixed together (i.e., usable), any further “tightening” of bolt 130E would not alter the pressure of “flexible compression arm” 400E against “probe pins” 3aE for the reason that the relative orientation of “flexible compression arm” 400E and “probe pins” 3aE are fixed in the same relative position by the ends of 112E and 116E no matter how tight bolt 130E is turned. In particular, see Fig. 24. ***Further tightening of the bolt 130E in this arrangement would not change the pressure of “flexible compression arm” 400E against “probe pins” 3aE.***

Furthermore, loosening of the clamping force of 112E and 116E to the point that the relative orientation of “flexible compression arm” 400E and “probe pins” 3aE (and therefore the pressure of “flexible compression arm” 400E against “probe pins” 3aE) can change would once again render the device unusable for its intended purpose. In particular, the pins would no longer be clamped, and would shift or fall out of the device, rendering it inoperable.

For at least the reasons described above, it is Applicant’s belief that the cited reference fails to teach or suggest all the limitations of claims 7. Applicant therefore respectfully requests that the rejection of claim 7 be withdrawn and the claim passed to issue. Insofar as claims 2, 3, 5, 13, 22, 24-25 and 34-38 depend from claim 1 either directly or indirectly, and therefore incorporate all of the limitations of claim 1, it is Applicant’s belief that these claims are also in condition for allowance.

Claim 39

Claim 39 recites a probe module for testing an LCD panel having a plurality of test points comprising:

- a probe base having a plurality of conductive metal traces;
- a plurality of completely exposed probe pins attached to the probe base, each of the probe pins comprising an elongate body, wherein at least part of the elongated body is bonded to at least one of the plurality of conductive metal traces of the probe base;
- a flexible circuit interconnect device for connecting the plurality of probe pins to an inspection apparatus;

a flexible compression arm attached to a probe base and configured to engage the plurality of probe pins; and

at least one adjustment element provided on the probe base for adjustably increasing and decreasing a pressure of the flexible compression arm on the plurality of probe pins during testing of the LCD panel so as to adjust a pressure of the probe pins on the test points.

Respectfully, bolt 130E (the alleged “adjustment element”) does not adjustably increase or decrease a pressure of the flexible compression arm on the plurality of probe pins during testing of the LCD panel. For the reasons noted above in connection with claim 7, bolt 130E has only two states, namely:

- 1) A state in which bolt 130E firmly fixes top clamp 111E/112E and bottom clamp 115E/116E together, in which case the pressure of “flexible compression arm” 400E against the “probe pins” 3aE is also fixed; and
- 3) A state in which bolt 130E is not tight such that it does not firmly fix top clamp 111E/112E and bottom clamp 115E/116E together, in which case “probe pins” 3aE and “flexible compression arm” 400E are also not firmly fixed there between, and thus “probe pins” 3aE may slide about, lose electrical contact with 3E, or fall out of the structure—i.e., the device is inoperable.

For at least the reasons described above, it is Applicant’s belief that the cited reference fails to teach or suggest all the limitations of claims 39. Applicant therefore respectfully requests that the rejection of claim 39 be withdrawn and the claim passed to issue.

Conclusion

The Applicant believes that the application is now in condition for allowance and respectfully requests so. The Commissioner is authorized to charge any additional fees that may be required or credit overpayment to Deposit Account No. **502447**.

Appl. No. 10/689,262
Examiner: NGUYEN, TUNG X, Art Unit 2829
In response to the Office Action dated February 9, 2009

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Respectfully submitted,

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